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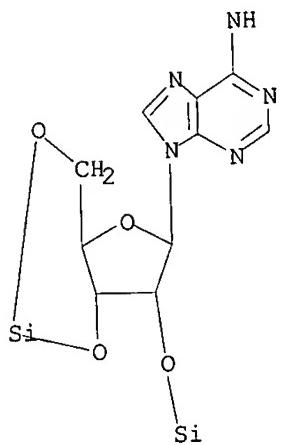
FILE 'REGISTRY' ENTERED AT 10:06:01 ON 12 AUG 2003

L1 STRUCTURE UPLOADED
L2 1 S L1 SSS SAM
L3 35 S L1 SSS FULL
L4 STRUCTURE UPLOADED
L5 0 S L4 SSS SAM
L6 3 S L4 SSS FULL

FILE 'CAPLUS, MEDLINE, USPATFULL' ENTERED AT 10:10:29 ON 12 AUG 2003

L7 141 S L3
L8 8 S L6
L9 6 S L7 AND L8

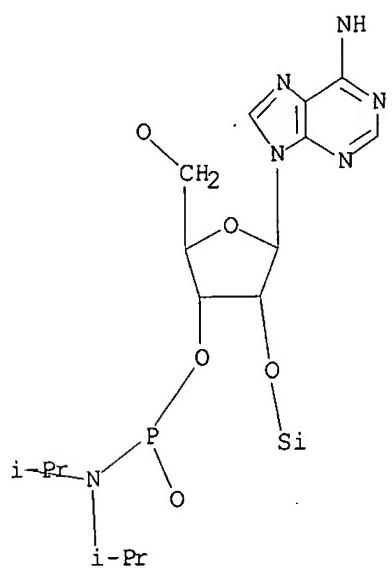
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L4 HAS NO ANSWERS
L4 STR



Structure attributes must be viewed using STN Express query preparation.

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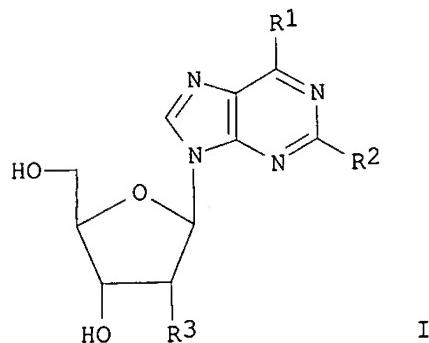


Structure attributes must be viewed using STN Express query preparation.

L9 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:794206 CAPLUS
 DOCUMENT NUMBER: 137:295195
 TITLE: Methods for synthesizing nucleosides, nucleoside derivatives and non-nucleoside phosphoramidites and succinates
 INVENTOR(S): Beigelman, Leonid; Karpeisky, Alexander; Serebryany, Vladimir; Haeberli, Peter; Sweedler, David
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 59 pp., Cont.-in-part of U.S. Ser. No. 944,554.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|-------------|
| US 2002150936 | A1 | 20021017 | US 2002-43951 | 20020111 |
| US 2002120129 | A1 | 20020829 | US 2001-944554 | 20010831 |
| PRIORITY APPLN. INFO.: | | | US 2000-230057P | P 20000901 |
| | | | US 2001-286571P | P 20010425 |
| | | | US 2001-944554 | A2 20010831 |

OTHER SOURCE(S): CASREACT 137:295195
GI



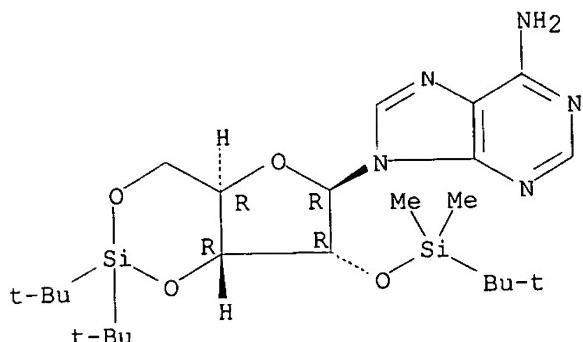
AB The present invention provides methods for the chem. synthesis of nucleosides I wherein R1 and R2 are independently hydrogen, substituted amine, aminoalkyl, fluoro or chloro; R3 is independently alkyl, alkoxyalkyl, alkylthioalkyl, cyanoalkyl, or arylalkyl optionally substituted with up to three groups that are independently halogen, alkoxy, nitro, or alkyl; and derivs. thereof, including 2'-amino, 2'-N-phthaloyl, 2'-O-Me, 2'-O-silyl, 2'-OH nucleosides, C-nucleosides, nucleoside phosphoramidites, C-nucleoside phosphoramidites, and non-nucleoside derivs. The invention provides a universal method for the synthesis of 2'-deoxy-2'-aminopurine and pyrimidine nucleosides and C-nucleosides that employs fewer synthetic steps, avoids the use of azides, and which concomitantly introduces N-phthaloyl protection of the 2'-amine. Thus, 5'-O-DMT-2'-deoxy-2'-N1-phthaloyl-N4-acetylcytidine 3'-O-(2-cyanoethyl-N,N-diisopropylphosphoramidite) was prep'd.

IT 212375-93-4P 401812-98-4P
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (methods for synthesizing nucleosides nucleoside derivs. and non-nucleoside phosphoramidites and succinates)

RN 212375-93-4 CAPLUS

CN Adenosine, 3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

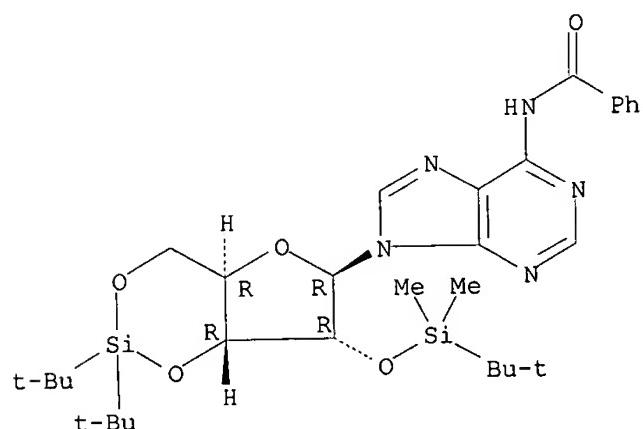
Absolute stereochemistry.



RN 401812-98-4 CAPLUS

CN Adenosine, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



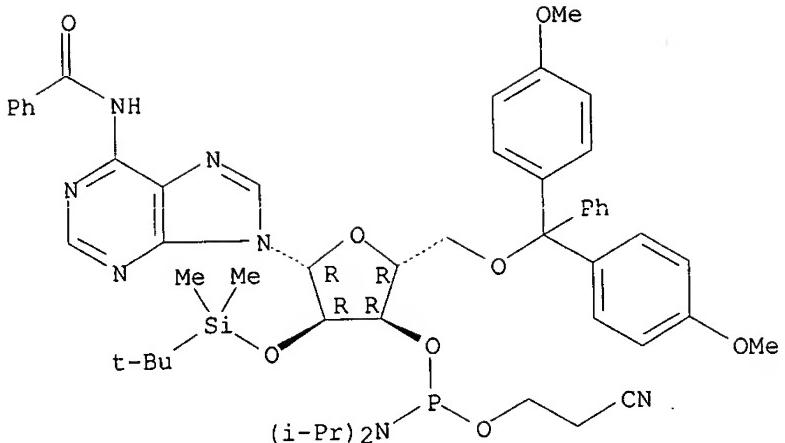
IT 104992-55-4P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(methods for synthesizing nucleosides nucleoside derivs. and non-nucleoside phosphoramidites and succinates)

RN 104992-55-4 CAPLUS

CN Adenosine, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L9 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:171919 CAPLUS

DOCUMENT NUMBER: 136:200423

TITLE: Methods for synthesizing nucleosides, nucleoside derivatives and non-nucleoside phosphoramidites and succinates

INVENTOR(S): Beigelman, Leonid; Karpeisky, Alexander; Serebryany, Vladimir; Haeberli, Peter; Sweedler, David

PATENT ASSIGNEE(S): Ribozyme Pharmaceuticals, Incorporated, USA

SOURCE: PCT Int. Appl., 118 pp.

CODEN: PIXXD2

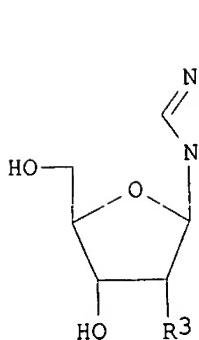
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|---|------------|
| WO 2002018405 | A2 | 20020307 | WO 2001-US27116 | 20010831 |
| WO 2002018405 | A3 | 20030103 | | |
| | | | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | |
| | | | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | |
| AU 2001086959 | A5 | 20020313 | AU 2001-86959 | 20010831 |
| EP 1313752 | A2 | 20030528 | EP 2001-966449 | 20010831 |
| | | | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | |
| PRIORITY APPLN. INFO.: | | | US 2000-230057P | P 20000901 |
| | | | US 2001-286571P | P 20010425 |
| | | | WO 2001-US27116 | W 20010831 |
| OTHER SOURCE(S): | | | CASREACT 136:200423; MARPAT 136:200423 | |
| GI | | | | |



I

AB The present invention provides methods for the chem. synthesis of nucleosides I wherein R1 and R2 are independently hydrogen, substituted amine, aminoalkyl, fluoro or chloro; R3 is independently alkyl, alkoxyalkyl, alkylthioalkyl, cyanoalkyl, or arylalkyl optionally substituted with up to three groups that are independently halogen, alkoxy, nitro, or alkyl; and derivs. thereof, including 2'-amino, 2'-N-phthaloyl, 2'-O-Me, 2'-O-silyl, 2'-OH nucleosides, C-nucleosides, nucleoside phosphoramidites, C-nucleoside phosphoramidites, and non-nucleoside derivs. The invention provides a universal method for the synthesis of 2'-deoxy-2'-aminopurine and pyrimidine nucleosides and C-nucleosides that employs fewer synthetic steps, avoids the use of azides, and which concomitantly introduces N-phthaloyl protection of the 2'-amine. Thus, 5'-O-DMT-2'-deoxy-2'-N1-phthaloyl-N4-acetylcytidine 3'-O-(2-cyanoethyl-N,N-diisopropylphosphoramidite).

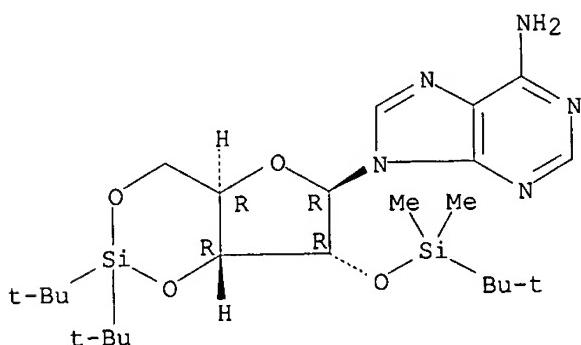
IT 212375-93-4P 401812-98-4P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(methods for synthesizing nucleosides nucleoside derivs. and non-nucleoside phosphoramidites and succinates)

RN 212375-93-4 CAPPLUS

CN Adenosine, 3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

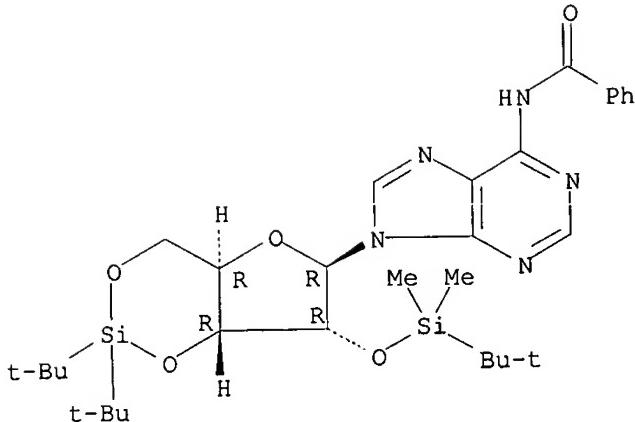
Absolute stereochemistry.



RN 401812-98-4 CAPPLUS

CN Adenosine, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



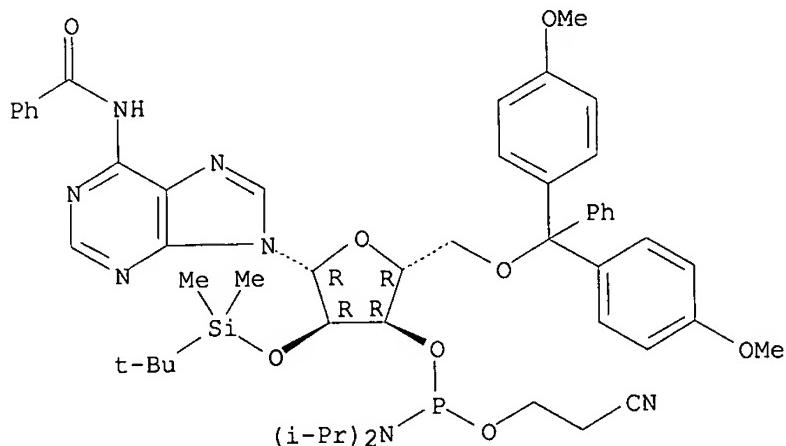
IT 104992-55-4P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(methods for synthesizing nucleosides nucleoside derivs. and
non-nucleoside phosphoramidites and succinates)

RN 104992-55-4 CAPLUS

CN Adenosine, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L9 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:675073 CAPLUS

DOCUMENT NUMBER: 136:37850

TITLE: Efficient synthesis of D-[1'-13C]-ribonucleosides for incorporation into oligo-RNA

AUTHOR(S): Saito, Y.; Nyilas, A.; Agrofoglio, L. A.

CORPORATE SOURCE: I.C.O.A. associe CNRS, Faculte des Sciences, Orleans, 45100, Fr.

SOURCE: Nucleosides, Nucleotides & Nucleic Acids (2001), 20(4-7), 937-940

CODEN: NNNAFY; ISSN: 1525-7770

PUBLISHER: Marcel Dekker, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

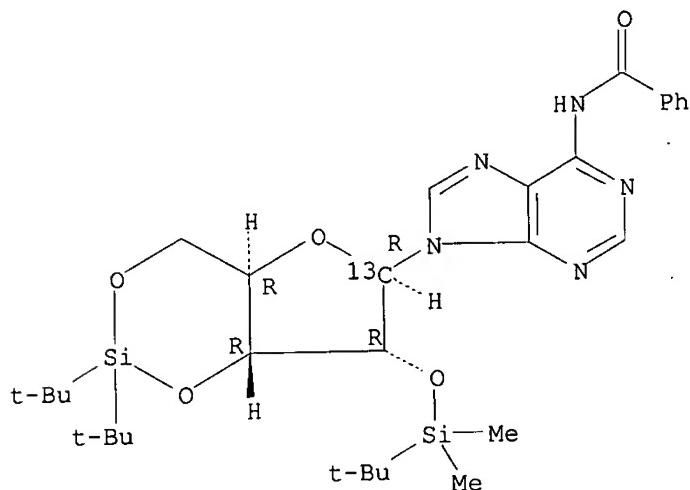
OTHER SOURCE(S): CASREACT 136:37850

AB Syntheses of the monomer building blocks used for the solid-phase

synthesis of specifically 1'-13C-labeled oligoribonucleotides from the D-[1-13C]ribose is presented. The procedure has been used for the selective formation of 2'-O-silylated ribonucleosides. Following 5'-O-dimethoxytritylation, the synthesis of D-[1'-13C] ribonucleoside phosphoramidites has been achieved.

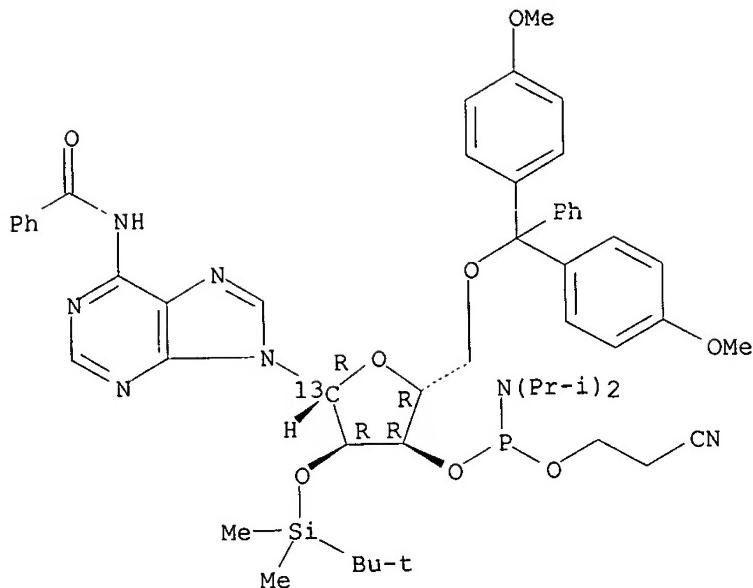
- IT 335595-77-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (synthesis of ribonucleosides for incorporation into oligo-RNA)
- RN 335595-77-2 CAPLUS
- CN Adenosine-1'-13C, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



- IT 335595-86-3P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of ribonucleosides for incorporation into oligo-RNA)
- RN 335595-86-3 CAPLUS
- CN Adenosine-1'-13C, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

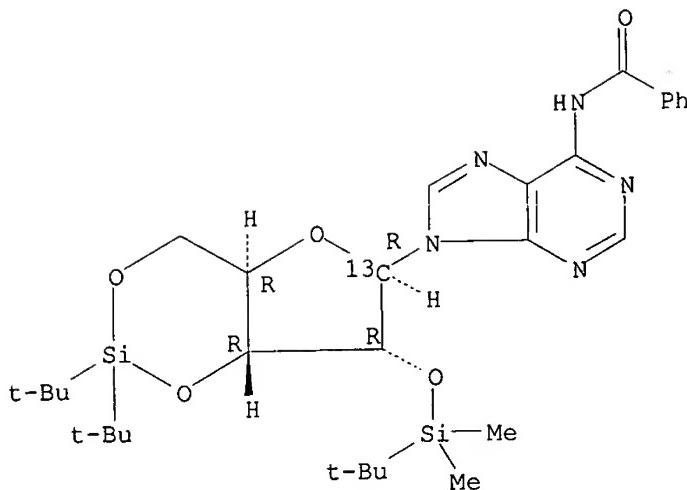
Absolute stereochemistry.



REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2001:154378 CAPLUS
 DOCUMENT NUMBER: 134:326702
 TITLE: Synthesis of isotopically labeled d-[1'-
 13C]ribonucleoside phosphoramidites
 Saito, Y.; Nyilas, A.; Agrofoglio, L. A.
 CORPORATE SOURCE: Institut de Chimie Organique et Analytique, CNRS UMR
 6005, Universite d'Orleans, Orleans, 45100, Fr.
 SOURCE: Carbohydrate Research (2001), 331(1), 83-90
 CODEN: CRBRAT; ISSN: 0008-6215
 PUBLISHER: Elsevier Science Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 134:326702
 AB The prepn. of fully protected labeled diisopropylamino-.beta.-cyanoethyl-
 [1'-13C]ribonucleoside phosphoramidites with regioisomeric purity is
 described. We demonstrated in this paper that a regioselective
 2'-O-silylation, through a 3',5'-O-di-tert-butylsilanediyl protection, has
 been applied for the synthesis of [1'-13C]ribonucleoside phosphoramidite
 units. This method allowed us to obtain only the desired
 2'-O-silyl-3'-O-phosphoramidites avoiding the undesired
 3'-O-silyl-2'-O-phosphoramidite nucleosides isolated by std. procedures.
 This is a suitable procedure to RNA precursors with respect to the
 isotope-contg. precursors.
 IT 335595-77-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (synthesis of isotopically labeled d-[1'-13C]ribonucleoside
 phosphoramidites via regioselective silylation as synthons for RNA)
 RN 335595-77-2 CAPLUS
 CN Adenosine-1'-13C, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-
 [(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



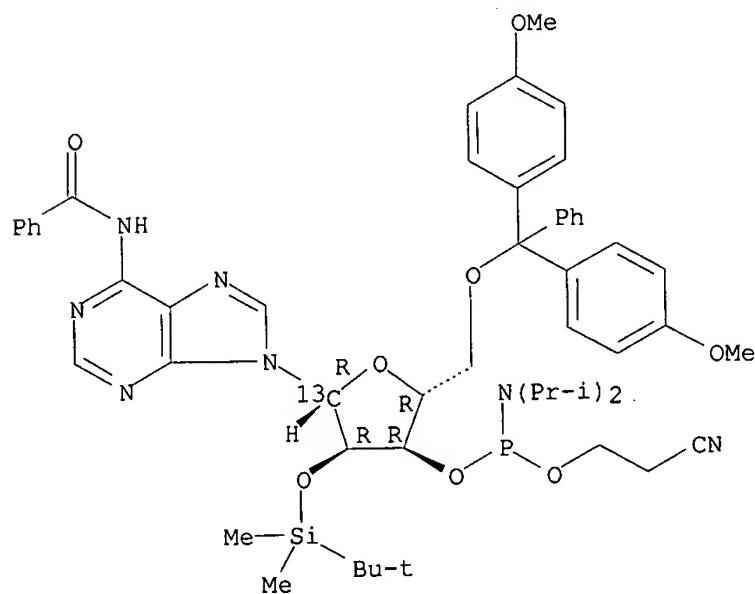
IT 335595-86-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of isotopically labeled d-[1'-13C]ribonucleoside
phosphoramidites via regioselective silylation as synthons for RNA)

RN 335595-86-3 CAPLUS

CN Adenosine-1'-13C, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-
[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-
methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT:

14 . THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 6 USPATFULL on STN

ACCESSION NUMBER: 2002:272815 USPATFULL

TITLE:

Methods for synthesizing nucleosides, nucleoside derivatives and non-nucleoside derivatives

INVENTOR(S): Beigelman, Leonid, Longmont, CO, UNITED STATES
Karpeisky, Alexander, Lafayette, CO, UNITED STATES
Serebryany, Vladimir, Boulder, CO, UNITED STATES

Haeberli, Peter, Berthoud, CO, UNITED STATES
Sweedler, David, Louisville, CO, UNITED STATES

| | NUMBER | KIND | DATE |
|-----------------------|--|------|---------------|
| PATENT INFORMATION: | US 2002150936 | A1 | 20021017 |
| APPLICATION INFO.: | US 2002-43951 | A1 | 20020111 (10) |
| RELATED APPLN. INFO.: | Continuation-in-part of Ser. No. US 2001-944554, filed on 31 Aug 2001, PENDING | | |

| | NUMBER | DATE |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 2001-286571P | 20010425 (60) |
| | US 2000-230057P | 20000901 (60) |
| DOCUMENT TYPE: | Utility | |
| FILE SEGMENT: | APPLICATION | |
| LEGAL REPRESENTATIVE: | MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606 | |
| NUMBER OF CLAIMS: | 45 | |
| EXEMPLARY CLAIM: | 1 | |
| NUMBER OF DRAWINGS: | 15 Drawing Page(s) | |
| LINE COUNT: | 4139 | |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention provides methods for the chemical synthesis of nucleosides and derivatives thereof, including 2'-amino, 2'-N-phthaloyl, 2'-O-methyl, 2'-O-silyl, 2'-O-triisopropylsilyloxymethyl, 2'-OH nucleosides, C-nucleosides, nucleoside phosphoramidites, C-nucleoside phosphoramidites, and non-nucleoside derivatives.

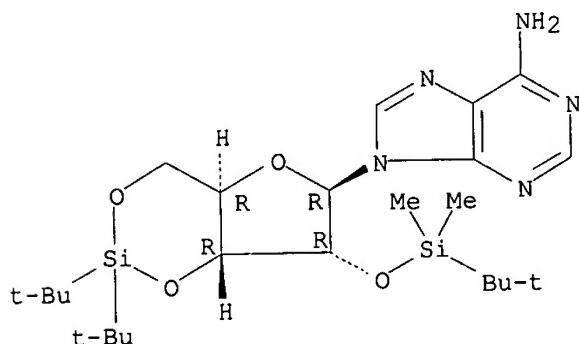
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 212375-93-4P 401812-98-4P
(methods for synthesizing nucleosides nucleoside derivs. and non-nucleoside phosphoramidites and succinates)

RN 212375-93-4 USPATFULL

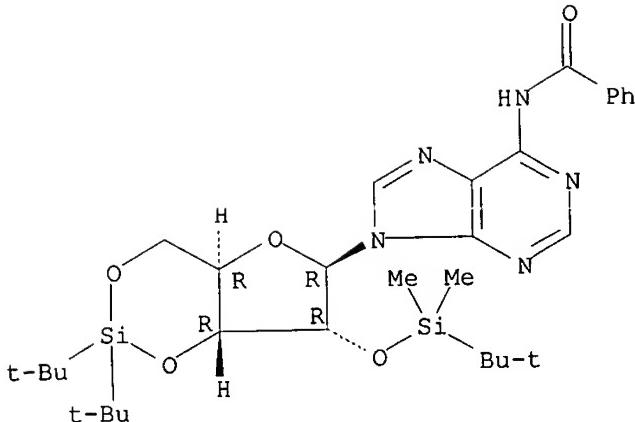
CN Adenosine, 3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 401812-98-4 USPATFULL
CN Adenosine, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

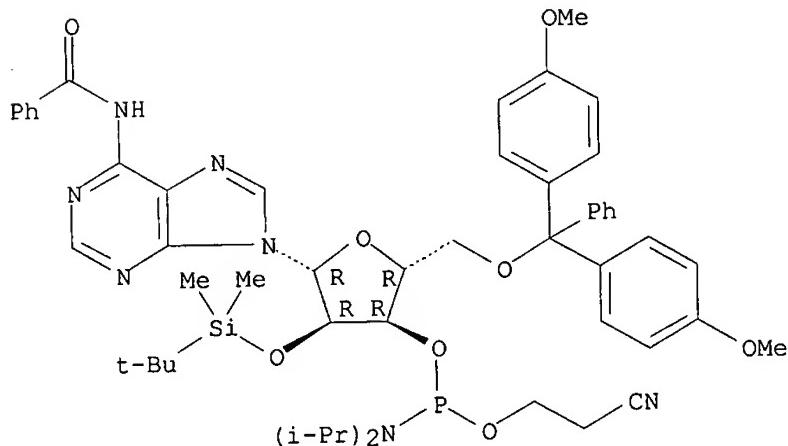


IT 104992-55-4P
 (methods for synthesizing nucleosides nucleoside derivs. and
 non-nucleoside phosphoramidites and succinates)

RN 104992-55-4 USPATFULL

CN Adenosine, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L9 ANSWER 6 OF 6 USPATFULL on STN

ACCESSION NUMBER:

2002:221984 USPATFULL

TITLE:

Methods for synthesizing nucleosides, nucleoside derivatives and non-nucleoside derivatives

INVENTOR(S):

Beigelman, Leonid, Longmont, CO, UNITED STATES

Karpeisky, Alexander, Lafayette, CO, UNITED STATES

Serebryany, Vladimir, Boulder, CO, UNITED STATES

Haeberli, Peter, Berthoud, CO, UNITED STATES

Sweedler, David, Louisville, CO, UNITED STATES

| | NUMBER | KIND | DATE |
|--|--------|------|------|
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PATENT INFORMATION: US 2002120129 A1 20020829
 APPLICATION INFO.: US 2001-944554 A1 20010831 (9)

| | NUMBER | DATE |
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PRIORITY INFORMATION: US 2000-230057P 20000901 (60)

US 2001-286571P 20010425 (60)

DOCUMENT TYPE:

Utility

FILE SEGMENT:

APPLICATION

LEGAL REPRESENTATIVE:

MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER
DRIVE, SUITE 3200, CHICAGO, IL, 60606

NUMBER OF CLAIMS:

75

EXEMPLARY CLAIM:

1

NUMBER OF DRAWINGS:

15 Drawing Page(s)

LINE COUNT:

3846

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention provides methods for the chemical synthesis of nucleosides and derivatives thereof, including 2'-amino, 2'-N-phthaloyl, 2'-O-methyl, 2'-O-silyl, 2'-OH nucleosides, C-nucleosides, nucleoside phosphoramidites, C-nucleoside phosphoramidites, and non-nucleoside derivatives.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

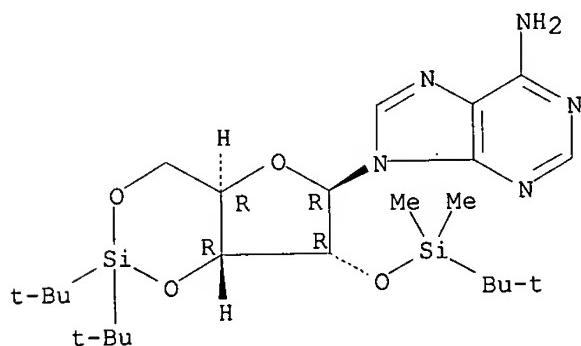
IT 212375-93-4P 401812-98-4P

(methods for synthesizing nucleosides nucleoside derivs. and non-nucleoside phosphoramidites and succinates)

RN 212375-93-4 USPATFULL

CN Adenosine, 3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

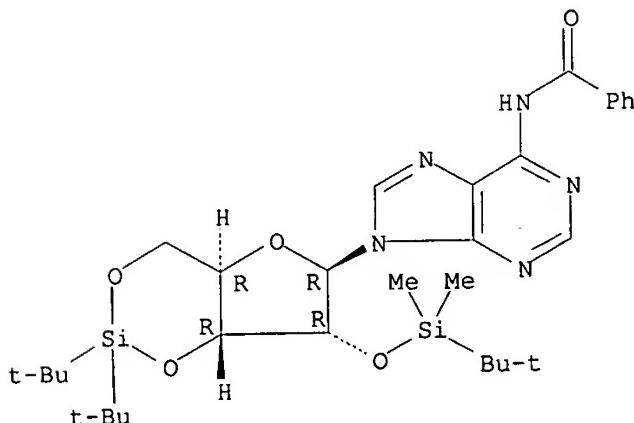
Absolute stereochemistry.



RN 401812-98-4 USPATFULL

CN Adenosine, N-benzoyl-3',5'-O-[bis(1,1-dimethylethyl)silylene]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



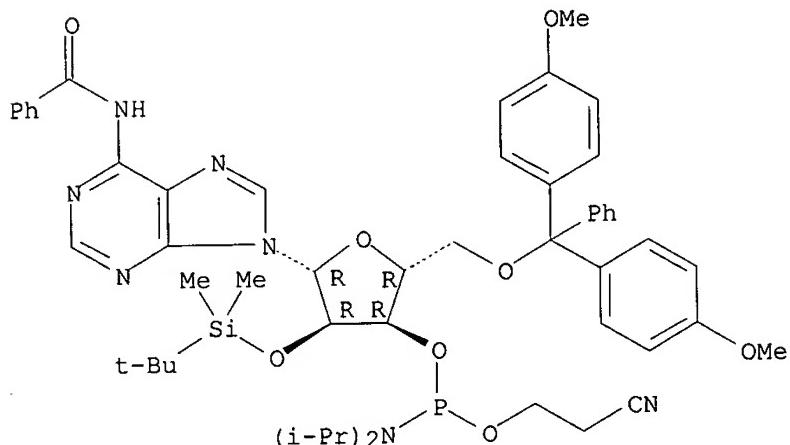
IT 104992-55-4P

(methods for synthesizing nucleosides nucleoside derivs. and
non-nucleoside phosphoramidites and succinates)

RN 104992-55-4 USPATFULL

CN Adenosine, N-benzoyl-5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-O-[(1,1-dimethylethyl)dimethylsilyl]-, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



=>